# EATING BEHAVIOURS AND ATTITUDES OF ADOLESCENT GIRLS: COMPARING SINGLE-SEX AND COED SCHOOLS

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# TABLE OF CONTENTS

# LIST OF TABLES

# ABSTRACT

The aims of this study are to examine the eating behaviours and attitudes of adolescent girls in Christchurch, and to compare the nature of these attitudes among students attending single-sex and coed schools.

Three hundred and sixty-three adolescent girls from two single-sex and three coed schools participated in this study. Each subject completed a questionnaire booklet consisting of the Eating Disorder Inventory and Symptom Checklist, the Figure Rating Scale, the Work and Family Orientation Scale, and the Popularity Measure. Each subject was weighed and had her height measured. Sixty-nine male subjects from one coed school also completed the Figure Rating Scale.

The results revealed a high prevalence of dieting (54%), binging (38%) and purging (up to 10%) in adolescent girls. The majority of the students (71%) perceived themselves to be overweight and wanted to change their body shape and size. The results are comparable to recent findings overseas. The comparison of eating behaviours and attitudes of single-sex and coed school students revealed no significant differences.

This study shows that although there are no significant differences in eating behaviours and attitudes of single-sex and coed students, there is distressingly high prevalence of eating disordered behaviours among adolescent girls. Eating patterns and concerns appear to differ across ethnic groups, suggesting a tendency for bulimic behaviours to be more common among Polynesian women. These findings illustrate the need for further research to enable us to better understand the nature of the eating behaviours and body image concerns that are becoming considered 'normal' among young women today.

# CHAPTER ONE

# INTRODUCTION

## 1. EATING BEHAVIOURS AND ATTITUDES IN ADOLESCENT GIRLS

### 1.1. Dieting and weight concern

Dieting and concerns about weight and shape are becoming increasingly prevalent among young adolescent girls. Research suggests that the rate of dieting in adolescent females has doubled in the past 20 years (Dwyer, Feldman & Mayer, 1967; Wadden, Brown, Foster & Linowitz, 1991). Today the majority of young women feel dissatisfied with their body size and shape, want to lose weight and have attempted dieting (Koff & Rierdan, 1991; Ritchie, 1988; Wadden et al., 1991; Worsley, Worsley, McConnon & Silva, 1990). For many young women dieting has come to represent a 'normal' eating style (Hill, 1993).

In a large sample of 15 year old New Zealanders, Worsley et al. (1990) found that 68% of the girls wanted to weigh less and 21% were currently dieting to lose weight. Ritchie (1988) studied a group of university students in New Zealand and found that 60% of the females were dissatisfied with their weight. The majority of young American girls in a study by Koff & Rierdan (1991) had adopted a 'dieting mentality', claiming to be avoiding fat, counting calories, thinking excessively about food, feeling guilty after eating and exercising to lose weight. Fifty-three percent of these girls had already begun dieting by the age of 11. Feeling overweight and

wanting to lose weight are becoming normative for young adolescent girls in today's society.

Weight control and dieting concerns also appear to be emerging at increasingly younger ages. Many recent studies have found weight concerns in pre-adolescent girls, developing between the ages of 9 and 11 years (Benbrook, 1989; Hill, 1993; Koff & Rierdan, 1991; Wardle & Marsland, 1989). Benbrook (1989) studied New Zealand girls aged between 10 and 14 years and found that half wanted to lose weight, had actually attempted weight loss and had a distorted body image. Wardle & Marsland (1989) surveyed British males and females aged between 11 and 18 years, the majority of the girls reported that they felt fat and wanted to lose weight. The level of weight concern was almost as high in the 11 year old girls as in the 18 year olds, suggesting that weight concerns are beginning earlier than in the past.

Weight and body shape are now a major concern for many adolescent girls (Wadden et al., 1991). In a large study evaluating the degree to which adolescent girls worried about their weight and figure relative to a broad range of concerns including the future, money and grades, Wadden et al. (1991) found that girls worried significantly more about their looks, weight, figure and popularity/relationships with the opposite sex than any other issues. They describe weight as a normative discontent among adolescent females.

### 1.2. Body image and dissatisfaction

Many studies show that the majority of women would like to be thinner (Fallon & Rozin, 1985; Rozin & Fallon, 1988; Zellner, Harner & Adler, 1989). Most adolescent girls also feel generally dissatisfied with their body shape and size

(Davies & Furnham, 1986a; Davies & Furnham, 1986b; Ritchie, 1988; Thelen, Powell, Lawrence & Kuhnert, 1992).

Davies & Furnham (1986b) investigated the body shape concerns of 11-18 year old girls in London. Although less than 4% of the girls were actually overweight, over 40% considered themselves to be overweight. When compared across ages, 70% of 12 year olds considered themselves just right, this figure decreased to 34% in girls aged 18 years. Davies & Furnham (1986a) investigated satisfaction with body characteristics in the same group of girls and found that overall body satisfaction declined from ages 12 to 18 years. Self perceived weight related more directly to body satisfaction than an actual weight/height ratio. Pre-adolescent girls are also beginning to show signs of body image concern and dissatisfaction. Thelen et al. (1992) studied the eating and body image concerns of elementary school children in America and found that girls aged between 9 and 13 years were significantly more concerned about being overweight and more dissatisfied with their current weight than younger girls.

Many studies have asked people to choose their current figure, ideal figure and the figure they perceive as most attractive to the opposite sex on the Figure Rating Scale (Stunkard, Sorenson & Schulsinger, 1983). Findings show that women tend to select their ideal figure and the figure they perceive as most attractive to the opposite sex as thinner than their current figure. This indicates that the majority of women want to be thinner than they think they are and perceive the opposite sex to prefer thinner figures than their own. Men, on the otherhand, are more satisfied with their bodies and tend to rate all three figures nearly identically. (Fallon & Rozin, 1985; Rozin & Fallon, 1988; Zellner et al., 1989).

Social pressures from the media and peers to achieve an unrealistic body shape and size can result in a preoccupation with food, weight and dieting. Attie & Brooks-Gunn (1989) found that young girls who felt most negatively about their bodies were more likely to have developed eating problems two years later. Body image dissatisfaction tends to be greater in people with eating disorders than in people who do not have eating problems. Williamson, Davis, Goreczny & Blouin (1989) found that bulimic women chose larger current body sizes and thinner ideal body sizes than non-bulimic women, regardless of actual size. Zellner et al. (1989) found that women who scored highly on the Eating Attitudes Test (Garner & Garfinkel, 1979), indicating abnormal eating behaviours, chose thinner ideal figures than opposite figures on the Figure Rating Scale. These women want to be thinner than they perceive themselves to be and also thinner than they think men find attractive. Body image dissatisfaction and extreme preference for thinness are fundamental characteristics of bulimia nervosa and anorexia nervosa.

### 1.3. Gender

Weight concerns and body dissatisfaction have been reported by many researchers to be greater in girls than boys (Benbrook, 1989; Koff & Rierdan, 1991; Richards et al., 1990; Ritchie, 1988; Thelen et al., 1992; Wardle & Marsland, 1989; Worsley et al., 1990).

Pliner, Chaiken & Flett (1990) examined the age and gender differences in concerns with eating, body weight, physical appearance, global self-esteem and appearance self-esteem. Significant gender effects for all variables were found, females reported greater concern and anxiety about physical appearance, weight control and eating, and lower appearance self-esteem than males. The importance of appearance decreased with age but all other variables remained constant.

In college and university students, weight concern and body satisfaction varies greatly between males and females. Cook, Reiley, Stallsmith & Garretson (1991) found that 68% of female and 20% of male college students reported moderate to extreme concern about being overweight. Significantly more women than men were preoccupied with controlling their eating, aware of their eating habits, counting calories, feeling guilty after eating and constantly on a diet. Women were more likely than men to attribute problems in eating behaviours to social stress and personal insecurity. Ritchie (1988) had New Zealand university students complete a questionnaire on eating behaviours and body satisfaction. Sixty-seven percent of female and 29% of male students described themselves as overweight. Sixty percent of females and 41% of males were dissatisfied with their weight. Sixty-seven percent of females compared with only 20% of men had dieted. Ritchie describes dieting and preoccupation with food and weight as a female phenomenon.

The gender imbalance is also visible at the high school level. Worsley et al. (1990) found that 68% of girls and 19% of boys aged 15 years wanted to weigh less. Forty-five percent of girls and 10% of boys were currently trying to lose weight. Overall girls were more preoccupied and concerned about body weight and shape than boys. Richards, Casper & Larson (1990) found extreme weight and eating concerns in 15% of girls aged between 10 and 13 years, this figure increased to 32% in 13 to 15 year old girls. Extreme concerns were found in 8% of boys and this did not differ with age. Wadden et al. (1991) found that young girls worried most about their looks, weight, figure and popularity/relationships with the opposite sex while boys worried most about money, looks and popularity/relationships with the opposite sex. Thelen et al. (1992) found that girls aged between 9 and 13 years were significantly more concerned about being overweight and the effects of eating than their male peers.

### 1.4. Adolescent Development and Eating Disorders

Erikson (1982) names identity formation as the main developmental task during adolescence - forming a coherent sense of self, a realistic and stable sense of identity. The peer group becomes extremely important during the teenage years as the adolescent seeks independence and separateness from his or her parents and strives to gain the acceptance and approval of his or her peer group (Brodzinsky, Gormly & Ambron, 1986). While developing their self-concept, girls tend to rely more on social experiences and the appraisals of others. In addition, girls appear to experience more anxiety, insecurity and self-conciousness during adolescence than boys (Hsu, 1990).

Weight concerns, body dissatisfaction, dieting, binging and purging all commonly emerge during early adolescence (Koff & Rierdan, 1991; Wardle & Marsland, 1989), this suggests that adolescent identity formation may be an important factor in the development of eating disordered behaviours and attitudes.

The increase in dieting and weight concern in the 1980's and 1990's has corresponded with a gradual shift towards a thinner ideal body shape for females in our culture (Garner, Garfinkel, Schwartz & Thompson, 1980). Adolescent girls, as they aspire to meet the unrealistic and unattainable ideal female figure their peers admire and value, feel pressure to conform to society's changing ideal and as a result are dieting to change their body shape and size.

Messages from the media stressing the desirability of a young thin body influence teenage women as they seek to develop and achieve independence from their parents, compete with their peers and establish their identity (Abraham, Mira,

Beumont, Sowerbutts & Llewellyn-Jones, 1992). Self esteem, depression and body image are all related to weight and eating concerns in older adolescent girls (Richards et al., 1990). Hsu (1990, p.101) argues "that 'normal' adolescent dieting provides an entree into an eating disorder if such dieting is intensified by adolescent turmoil, low self- and body-concept and poor identity formation". Genetic, psychodynamic, biological and family factors all play an etiological role as they moderate the pathway from dieting to more dangerous eating disorders (Hsu, 1990).

## 1.5. Prevalence of Eating Disordered Behaviours

### Dieting

The prevalence of dieting found in adolescent girls varies from 21% to 67% (Crawford & Worsley, 1988; Koff & Rierdan, 1991; Leon, Perry, Mangelsdorf & Tell, 1989; Ritchie, 1988; Worsley et al., 1990). Koff & Rierdan's research shows that 53% of young adolescent girls had begun dieting, and 70% of these had first dieted between the ages of 9-11 years. Worsley studied 15 year old New Zealand girls and found that only 21% had dieted. The variation in prevalence findings of dieting among adolescents may be due to the definition of dieting used. Worsley et al. (1991) refer to weight reduction diets and actually mention several diet programmes such as Weight Watchers, on the other hand Koff & Rierdan (1991) use a less specific definition and just refer to general dieting.

The numbers of young women dieting have been increasing with time. Crawford & Worsley (1988) studied dieting and weight control in a random sample of adult women and found that the average age at the first slimming diet was lowest for the youngest group of women and increased with age. The proportion of women who

had ever dieted also decreased with age: 71% percent of women under 30 years had dieted compared with only 42% of women aged 55 or over.

Dieting in young women is one of the factors that can lead to the development of more dangerous eating disorders such as anorexia nervosa and bulimia nervosa. Hsu (1990) describes eating disturbances as a behavioural continuum ranging from simple dieting to subclinical to diagnosable eating disorders.

**Binging and Purging**

Less research has been done looking at binging and purging behaviours in adolescent girls. Findings vary depending on the definition and frequency criteria used. Seventeen percent of females aged 13-20 have been found to binge at least once a week (Abraham et al., 1983; Johnson, Lewis, Love, Lewis & Stuckey, 1984; Moss, Jennings, McFarland & Carter, 1984). Sixty-three percent of the young women (mean age 20 years) surveyed by Abraham et al. reported binge eating at some time. Killen et al. (1986) assessed the frequency of purging among 1728 10th grade students (aged approximately 15 years) and found that 13% reported purging of some sort on an occasional basis. Seven to 11% of adolescent girls report purging by self-inducing vomiting, 4% to 8% abusing laxatives, 3% to 4% abusing diuretics and 3% to 13% using diet pills (Abraham et al., 1983; Ben-Tovim, Subbiah, Scheutz & Morton, 1989; Johnson et al., 1984; Killen et al., 1986; Moss et al., 1984).

The findings among adolescent girls are quite similar to those reported by older women. Crawford and Worsley (1988) investigated methods of weight-control practised by adult women in the past year and found that 68% exercised, 38% dieted, 14% fasted, 10% used slimming tablets, 6% used diuretics, 3% used laxatives and 0.5% self-induced vomiting.

Little research has been done looking at binging and purging among adolescent males. Findings range from 2% to 20% (Leon et al., 1989; Ritchie, 1990; Worsley et al., 1990). Killen et al. (1986) looked at purging in a large sample of adolescents and found that 5% of the males had purged by self-inducing vomiting, 6% used laxatives, 2% used diuretics and 4% used diet pills. The prevalence of purging among females out numbered males 2 to 1.

**1.6. Prevalence of Eating Disorders**

Many studies investigated the occurrence of eating disorders in the general population, findings vary significantly depending on the definition and diagnosis used. The most current and frequently used diagnostic system today is DSM-III-R (American Psychiatric Association, 1987).

Pyle, Neuman, Halvorson & Mitchell (1991) studied the prevalence of disordered eating in a large freshman college population and found that 4.7% of females and 0.4% of males met either DSM-III or DSM-III-R criteria for the diagnosis of bulimia nervosa or anorexia nervosa.

Several studies have estimated the prevalence of anorexia nervosa in females to range from 0.1% to 2.1%. Pyle et al. (1991) found that 0.1% of US female college students met diagnosis for anorexia nervosa. Hsu (1990) reviewed prevalence studies and reported that between 0.7% to 2.1% of young women met diagnosis for anorexia. The Christchurch Psychiatric Epidemiology Study (Wells, Bushnell, Hornblow, Joyce & Oakley-Browne, 1989) interviewed 1498 adults aged 18 to 64 years, 0.3% of females and no males met diagnosis for anorexia. When compared across age groups they found all the women diagnosed as anorexic were between 25

and 44 years of age. Ben-Tovim & Morton (1990) reported the annual prevalence rate for anorexia nervosa among Australian students (aged from 16 to 25 years) to be between 0.02 and 1.05 per 1000 females.

The prevalence of bulimia is slightly higher. Pyle et al. (1991) found that 2% of college females and 0.3% of males met DSM-III-R diagnosis for bulimia nervosa. Ben-Tovim et al. (1989) investigated bulimia in 3 Australian community samples - shoppers in a large shopping centre, women attending a general practice group and high school students. The results showed that 1.4% of GP group and 2% of high school group fulfilled DSM-III-R diagnostic criteria for bulimia. The prevalence rates are consistent across age ranges up to the 45+ age group. Hsu (1990) reviewed the prevalence of bulimia nervosa found by a number of studies in Western Europe and America, he concluded that between 2% and 4.5% of the young women surveyed had a bulimic disorder. The Christchurch psychiatric epidemiology study (Wells et al., 1989) diagnosed 1.9% of females and 0.2% of males as bulimic. Again bulimia diagnoses were more prevalent among those under age 45.

Severe eating disorders such as anorexia nervosa and bulimia nervosa are relatively rare among the general population, but research shows they are significantly more prevalent among females and younger adults (Ben-Tovim et al., 1989; Wells et al., 1986). Subclinical or partial syndromes of anorexia nervosa and bulimia nervosa are becoming increasingly common, particularly among young adolescent girls Hill, 1993; Moss et al., 1984).

Societal pressure to be thin and conform to the ideal figure has led to increased body dissatisfaction and a greater desire to diet and change their appearance among young women. These behaviours often result in binging and then purging as

the young women starves herself until she loses control and can no longer maintain the diet. The prevalence of eating disorders such as anorexia nervosa and bulimia nervosa are increasing as body dissatisfaction, dieting, binging and purging become more prevalent. These disordered eating behaviours are often predeterminants to full-blown clinical syndromes which can seriously damage a young women's physical and mental well-being.

## 2. SINGLE-SEX VERSUS COEDUCATION

Much recent research has been done comparing the effects of single-sex and coeducation on students (Jones, Kyle & Black, 1987; Lee & Bryk, 1986, 1989; Lee & Marks, 1990; Marsh, 1989a, 1989b; Schneider & Coutts, 1982). These studies are all follow-ups of earlier research by Coleman (1961) and Dale (1974). Coleman describes coeducational schools as inimical to both academic achievement and social adjustment. Dale, on the other hand, concludes that boy's progress is improved by coeducation while that of girls is not harmed. No clear conclusion on the effects of single-sex versus coeducation can be drawn as the findings vary depending on the population sampled and methods used.

### 2.1. Academic differences

Much of the ongoing debate between the supporters of single-sex and coeducation has centred around the differences in academic achievement and gains of the students in the two types of schools. There are extreme variations in the conclusions and interpretations of single-sex and coed comparisons.

Lee & Bryk (1986, 1989) found that students attending single-sex schools were at an advantage over those attending coeducational high schools, especially girls. Students from single-sex schools made greater academic gains and achievements, had higher educational aspirations and were less likely to display stereotyped sex role attitudes and behaviours than coed students.

Marsh (1989a) compared the effects of single-sex and coed schools on the achievements, attitudes and behaviours of 2332 high school students and found no significant academic differences between students at single-sex and coeducational schools. Marsh explains the differences found in earlier studies as the result of differences in the characteristics of students who attend the two types of schools and methodological issues. Once preexisting characteristics were controlled for there were no significant differences between the two types of schools.

Schneider & Coutts (1982) studied the climate and environment of students at five coed and eight single-sex high schools in Canada. A large sample of students (aged 16-19 years) completed the High School Characteristics Index, measuring value climate and environmental press. No consistent evidence to support the hypothesis that coed schools place less emphasis on the scholarship and achievement than single-sex schools was found.

### 2.2. Social and environmental differences

Recent research has also compared the social climate and environment of single-sex and coed schools. The overall conclusion appears to be that single-sex schools are more competitive, disciplined and academically-orientated while coed schools focus more on positive social relations. Schneider & Coutts (1982) found that coed schools placed greater emphasis on affiliation and pleasurable, non-academic

activities and less emphasis on control and discipline than single-sex schools. Coed schools attended to students' social-emotional needs and minimised the necessity of regiment and discipline. Riordan (1990) found that single-sex schools tended to provide more traditional and successful role models. These schools provide strict discipline systems that weaken the non-academic value system or adolescent sub-culture. This creates an environment that is ordered and controlled.

Jones et al. (1987) studied students that attended schools that had recently changed from single-sex to coed. They found that the majority of students favoured being in a coed school, they saw coeducation as more natural and realistic. Riordan (1990) states that mixed schools provide a social environment that is more in keeping with the modern world. The social psychological environment of single-sex school is more conducive to high academic performance (Riordan, 1990).

**2.3. Gender**

Trends in past research suggest that girls may benefit more from single-sex education, while boys are not influenced by the type of school they attend (Lee & Bryk, 1986). Single-sex education enables young women to form values and set goals to overcome social-psychological barriers to their academic and professional advancement. More recent research has not replicated these findings (Marsh, 1989) and leads to the conclusion that their are no overall advantages for groups of students at single-sex or coed schools, although individual advantages probably do exist.

The research comparing single-sex and coed schools to date has been fraught with methodological problems and has been unable to come to any agreed upon and proven conclusions. The general trends show that there may be some academic

advantages for students attending single-sex schools, while coed schools are perceived by their students as providing a more pleasant and natural environment.

## 3. EATING BEHAVIOURS AND ATTITUDES IN SINGLE-SEX AND COED SCHOOLS.

This study was conducted firstly, to investigate the eating behaviours and attitudes of a large sample of adolescent girls in Christchurch and secondly, to compare the eating behaviours and attitudes of students attending single-sex and coed schools. As the rate of weight concern, body image dissatisfaction and eating disordered behaviours is increasing in adolescent females at such an alarming rate, it is important to determine what factors lead to and influence the development of unhealthy eating behaviours and attitudes. Adolescents spend much of their time in school, where they interact and learn from their peers, the social environment and culture within schools could play an important part in the development of eating disordered behaviour. The social environment of coed schools has been found to be less competitive and disciplined than single-sex schools (Schneider & Coutts, 1982). Coed schools provide a more pleasant atmosphere which focuses on friendliness, social life and normal boy-girl relationships (Dale, 1974). These factors may influence the development of eating disorders in single-sex and coed schools. No research has been found comparing the eating behaviours and attitudes of students at single-sex and coed high schools. Berg (1988) looked at the prevalence of eating disorders in Australian university students living in coed and single-sex residence halls. Subjects in coed floors had a significantly higher level of body dissatisfaction and drive for thinness. Coed residents also scored significantly higher on bulimic symptomology. Berg attributes these differences to the stress

factors associated with leaving home for the first time and adjusting to living close contact with male peers.

Competing hypotheses exist for predicting whether eating disordered behaviours and attitudes would be more prevalent among single-sex or coed school students.

Hypothesis One is that the eating behaviours and attitudes of single-sex students will be more disordered than coed students. This could be caused by either of two factors - competitiveness or the less natural environment of single-sex schools. As single-sex schools have been found to be more competitive and academically oriented (Lee & Bryk, 1986), girls at single-sex schools may feel more pressure to succeed and achieve highly. Pressure to excel may come from both school and home if parents also have very high expectations for their children. Students at single-sex schools may feel increased competition and pressure to succeed socially as well as academically. Adolescent girls at single-sex schools may feel to succeed socially and be popular they need to compete with their peers to be more attractive, slimmer and have a better figure. This pressure and competition could lead to increased dieting and weight concern among girls at single-sex schools.

As the social environment in single-sex schools is not as natural as that provided by coed schools, girls at single-sex schools may have a less accurate view of social relationships. Girls attending single-sex schools, particularly if they have no brothers at home, may have had little to do with boys at all. They may not know what boys find attractive in girls and think qualities such as personality, intelligence, sense of humour and friendliness are much less important than appearances when trying relate to and interact with members of the opposite sex. Girls from coed schools, who are more familiar with boys and what they value and find attractive in females, may have a more realistic and accurate view. Consequently girls from

single-sex schools may feel it is more important to be slim than girls from coed schools. Girls from single-sex schools may therefore be more concerned about their weight and likely to diet than coed students.

Hypothesis Two is that the eating behaviours and attitudes of coed students will be more disordered than those of single-sex students. This could be caused by the social environment of coed schools, which emphasises social relations and affiliation. As coed schools are less competitive, academically oriented and disciplined students may be less focused on school work and pay more attention to their social environment and popularity among their peers. The social environment of coed schools, which emphasizes social relations and affiliation (Schneider & Coutts, 1982) may lead to increased awareness of social situation and popularity. Coed students may feel they need to be slim and attractive to be popular.

The specific aims of this study are:

1. To investigate the prevalence of eating disordered behaviours (dieting, binging and purging) and body image dissatisfaction in a large sample of Christchurch adolescent girls using the Eating Disorder Inventory (Garner, 1991) and the Figure Rating Scale (Stunkard et al., 1980).

2. To compare the eating behaviours and attitudes of students attending single-sex and coed secondary schools using the Eating Disorder Inventory (Garner, 1991).

3. To compare the body image dissatisfaction of students attending single-sex and coed secondary schools using the Figure Rating Scale.

4. To compare the achievement orientation and competitiveness of students attending single-sex and coed secondary schools using the Work and Family Orientation Scale (Helmreich & Spence, 1978).

5. To compare the attitudes about what makes a person popular of students attending single-sex and coed secondary schools using the Popularity Measure designed for this study.

6. To compare adolescent girls perception of the female figure most attractive to the opposite sex and the female figure adolescent boys find most attractive using the Figure Rating Scale.

# CHAPTER TWO

# METHOD

## 1. SUBJECTS

432 fourth form students from five state secondary schools in Christchurch, New Zealand participated in this study.

Of the 432 subjects, 363 were female and 69 were male. One hundred and eighty-four of the female subjects attended single-sex schools, 88 attended Christchurch Girl's High School and 96 attended Avonside Girl's High School. The remaining 179 female subjects attended coed schools, 43 attended Riccarton High School, 55 attended Papanui High School and 81 attended Linwood High School. The male subjects all attended Linwood High School.

At each school teachers selected a range of fourth form classes to take part in the study. Teachers were asked to ensure the classes participating represented the full range of students at the school.

## 2. PROCEDURE

Each school was initially approached by telephone and the research proposal was briefly explained to an appropriate staff member. A meeting was then held with either the Principal, Deputy Principal, Health Committee Member or Guidance Counsellor to discuss the study in more detail. Once the school had agreed to take part in the research project a meeting was scheduled with the Health Committee Member to decide when and how the research would be conducted. A copy of the

research proposal (see Appendix A) and details of when and where the research was to take place was sent to the Principal of each school.

The procedure used at each school varied depending on the school's system for administering research and the method considered least disruptive for the school.

The study was conducted anonymously and all results were entirely confidential. Participation was voluntary and subjects were free to withdraw at any time. Informed consent was obtained from all subjects and their parents. All subjects were given a consent form (see Appendix B) approximately one week before the research was to take place. This was taken home to be signed by the subject and their parents or guardian.

Female subjects were asked to complete a questionnaire booklet which consisted of four questionnaires - the Eating Disorder Inventory (Garner, 1991), the Work and Family Orientation Scale (Helmreich & Spence, 1978), the Popularity Measure (developed by the researcher) and the Figure Rating Scale (Stunkard et al., 1980). Each subject was weighed and had her height measured in her school uniform without shoes on. This procedure took place during school time and lasted approximately one hour. The surveys were conducted between September and November 1992.

Each male subject was asked to complete the Figure Rating Scale (Stunkard et al., 1980), this procedure was also carried out in school time and took approximately five minutes.

After the questionnaires had been completed, subjects were thanked for their participation and given a brief description of the purpose and reasons for the study.

Subjects were encouraged to ask questions and discuss the research. All female subjects were given a pamphlet on the Women with Eating Disorders Resource Centre (WEDRC) in Christchurch. As the study was anonymous it was not possible to identify clinical cases. Any students with concerns about eating, their weight and body shape were encouraged to approach WEDRC and discuss these further.

Ethical approval for this study was obtained from the University of Canterbury, Department of Psychology Ethics Committee before the study commenced.

## 3. TEST MATERIALS

The questionnaire booklet completed by female subjects consisted of four questionnaires and was 10 pages long (see Appendix C).

The cover page asked for the subject's age, gender, ethnic group, school, and details of parent's education and occupation. As the result of an oversight, the ethnic group of subjects attending single-sex schools was not asked.

### 3.1. Hollingshead Two-Factor Index of Social Position

The Hollingshead Two-Factor Index of Social Position (Hollingshead, 1957) is a widely used measure of socio-economic status. Subjects were asked to give details of their Father's and Mother's occupation and education. Mother's occupation and education were not included in the original Index, it was decided to include them in this study as a high proportion of women work and contribute to the household today. Subjects responses were then coded from 1 to 7 using the Hollingshead Index. A second rater independently coded each subjects responses, any differences were discussed and a mutual decision was reached enabling a high

degree of agreement between raters. Parents who worked at home as caregivers were placed in a separate category. The Hollingshead Index Position is based on the sum of these two weighted components and was derived by averaging the Father and Mothers scores. If details of only one parent's occupation and education were provided then this was used.

### 3.2. Eating Disorder Inventory

The Eating Disorder Inventory (EDI) is a widely used self-report measure of symptoms associated with anorexia nervosa and bulimia nervosa. The EDI was used in this project to screen for eating disorder symptomatology and assess subjects' eating behaviours and attitudes. The EDI was administered in two parts. Part one, the EDI symptom checklist, asks general questions about dieting, binging and purging behaviours. This section was abbreviated from the original to reduce the time needed to complete it. Part two is a 91-item self-report questionnaire that provides standardized subscale scores on 11 dimensions relevant to eating disorders (drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, maturity fears, asceticism, impulse regulation and social insecurity). Subjects were asked to indicate how often each item applies to them on a six-point scale ranging from never to always. There is consistent evidence that the psychometric properties of the EDI are sound and sensitive to clinical change (Garner, 1991). The average item-total scale correlation of .63 and the EDI's ability to differentiate between eating disorder and nonpatient samples illustrates its high content and criterion related validity. Internal consistency reliability estimates for eating disorder samples range from .80 to .93, similar estimates have been reported for other populations. Test-retest reliability coefficients range from .41 to .97, with most being above .70 (Garner, 1991).

### 3.3. Work and Family Orientation Scale

The Work and Family Orientation Scale (WOFO) is a 32 item measure of achievement motivation and attitudes towards family and career. In this study, only the first 23 items which ask about achievement motives were included. The WOFO consists of four subscales (mastery, work, competitiveness and personal unconcern). Subjects were asked to indicate how well each statement describes themselves by selecting an answer on a five-point likert scale ranging from very like me to very unlike me. The WOFO has been shown to be a reliable and valid measure of achievement motivation. The cronbach alpha coefficients found for this scale range from .50 to .76, most being above .60. The scale's sound construct validity is demonstrated by it's ability to differentiate between groups expected to vary in their manifestation of achievement motives (Helmreich & Spence, 1978).

### 3.4. Popularity Measure

The Popularity Measure was created for this study to assess the attributes and characteristics subjects believe make a person popular. Three pilot tests were carried out with adolescent females aged between 13 and 15 years to determine the attributes young people consider important in being popular. The participants were approached individually and asked to think about what made a person their age popular and why some people were more popular than others. They were asked to name the qualities they believed were important and unimportant in being popular. From the participants' responses, a list of 14 attributes was determined, these attributes made up the popularity measure. Subjects were asked to indicate how important they thought each item was in being popular on a five-point Likert scale ranging from very important to very unimportant. Subjects were then asked to rank the 14 items in order of importance, from 1 (the most important item) to 14

(the least important item). Subjects were also asked how important being popular was to them and answered on a seven-point likert scale ranging from very important to very unimportant.

### 3.5. Figure Rating Scale

The Figure Rating Scale is a measure of body image perception. Subjects were presented with nine drawings of female figures ranging from very thin to very heavy, each figure is accompanied by a numerical value between 10 (very thin) and 90 (very heavy). Subjects were asked to choose the figure that best illustrates their current appearance, the figure they would most like to look like and the figure they think would be most attractive to the opposite sex. Subjects indicated the figure they had chosen by selecting the number beneath it, and were encouraged to use intermediate numbers. Sorenson, Stunkard, Teasdale & Higgins (1982) assessed the validity of the Figure Rating Scale by determining its relationship to measured body mass index (BMI). The correlation coefficients reported (.74 and .63) illustrate high concurrent validity.

The questionnaire completed by males subjects consisted of one questionnaire and was one page long (see Appendix D.)

Male subjects were asked the same demographic questions as females - age, gender, ethnic group, school and details of parent's occupation and education. They then completed the Figure Rating Scale. This, like the Figure Rating Scale completed by female subjects, consisted of 9 silhouettes of female figures ranging in size from very thin (10) to very heavy (90). Males were asked to indicate the female figure they found most attractive by selecting the number below the figure.

# CHAPTER THREE

# RESULTS

## 1. STUDY ONE

**1.1. Goal:** To examine the eating behaviours and attitudes, and body image concerns of a large sample of fourth form girls in Christchurch in comparison to published results.

**1.2. Data Analysis:** Unpaired t-tests and Analyses of Variance (ANOVAs) were used to compare demographic, eating disorder and body image variables across ethnic groups and gender. All analyses were performed using Statview (Abacus concepts, 1987).

**1.3. Demographic Data:** Table 1 presents the means and standard deviations of demographic variables for the population.

Table 1: Demographic variables for the Christchurch sample.

| | |
|---|---|
| Age (years) | 15.0 ± 0.4 |
| SES | 44.3 ± 14.7 |
| BMI ($kg/m^2$) | 21.6 ± 3.2 |
| Height (m) | 1.64 ± 0.1 |
| Weight (kg) | 57.8 ± 9.2 |

Note. the values represent the mean ± standard deviation.

Subjects ranged in age from 14.0 to 16.3 years, the average age was 15.0 years. Hollingshead social position scores ranged from 11 to 77 with a mean of 44.3. Body Mass Index (BMI) measures ranged from 15.0 to 33.6, the average being 21.6. Sixty nine percent of subjects had a BMI that was within the normal range (19-24) for their age (Bray, 1978), 18% had a BMI below and 13% had a BMI above the desirable range.

Table 2 presents the ethnic identity of the sample, the majority of the subjects (77%) identified themselves as Pakeha or European, while 16% were Maori or Pakeha/Maori.

Table 2: Ethnic group of the Christchurch sample

| Ethnic Group | Number of subjects | Percentage of subjects |
|---|---|---|
| Pakeha/European | 134 | 77% |
| Maori | 15 | 9% |
| Pakeha/Maori | 13 | 7% |
| Samoan | 6 | 3% |
| Asian | 3 | 2% |
| Other | 3 | 2% |

Note. Data are missing for all single-sex students and 5 coed students.

There were no significant differences in the height ($F(5)=1.31$, $p=.261$) weight ($F(5)=1.9$, $p=.097$) and BMI ($F(5)=1.97$, $p=.086$) of subjects across ethnic groups. Samoan subjects were slightly, but non-significantly, heavier (66.7kg) and had a higher BMI (25.3) than the other subjects.

**1.4. EDI-2 Symptom Checklist:** Table 3 presents the percentage of subjects who report engaging in various weight loss behaviours. Fifty-four percent of subjects had dieted and the average age of first dieting was 12.9 years. Thirty-nine percent had binged and the average number of binges per week was 2.3. Other methods of weight loss included vomiting (12%), laxatives (3%), diet pills (2%) and diuretics (0.3%). Ninety percent of the subjects indicated that they had begun menstruating.

The rates of dieting, binging and purging were compared across ethnic groups. There was no significant difference in the prevalence of dieting and binging among Pakeha, Maori and Samoan subjects. Samoan subjects were significantly more likely to self-induce vomiting and use diuretics to lose weight than Pakeha or Maori subjects.

Table 3: EDI-2 Symptom checklist - weight loss behaviours engaged in by the Christchurch sample and compared across ethnic groups.

| | Total N=363 | Pakeha N=134 | Maori N=28 | Samoan N=6 |
|---|---|---|---|---|
| Dieting | 54% | 51% | 54% | 67% |
| Binging | 38% | 38% | 36% | 67% |
| Vomiting | 12% | 10% | 19% | 50%** |
| Laxative | 3% | 2% | 0 | 17% |
| Diet pills | 2% | 3% | 4% | 0 |
| Diuretics | 0 | 0 | 4% | 0* |
| Menstruating | 90% | 88% | 89% | 100% |

Note. Part Maori subjects are included in the Maori group.

*$p<.05$
**$p<.005$

**1.5. EDI-2 Subscales:** Table 4 presents the means scores and standard deviations of the Christchurch sample and three other groups for the eight EDI-2 subscales and three provisional subscales.

Table 4: EDI-2 subscale scores for the Christchurch sample and three comparison groups.

| | Christchurch N=363 14-16yr | Rosen et al. N=675 14-18yr | Shore & Porter N=231 14-18yr | Garner N=205 18-25yr |
|---|---|---|---|---|
| Drive for Thinness | 5.3 ± 5.4 | 5.6 ± 5.9 | 7.1 ± 5.9 | 5.5 ±5.5 |
| Bulimia | 2.2 ± 3.1 | 2.1 ± 3.3 | 2.2 ± 2.8 | 1.2 ±1.9 |
| Body Dissatisfaction | 13.4 ±8.4 | 11.3 ± 7.7 | 12.1 ± 8.7 | 12.2 ±8.3 |
| Ineffectiveness | 5.3 ± 5.6 | 4.2 ± 5.1 | 4.2 ± 4.9 | 2.3 ±3.6 |
| Perfectionism | 4.0 ± 4.0 | 5.2 ± 4.3 | 5.0 ± 4.1 | 6.2 ±3.9 |
| Interpersonal Distrust | 4.1 ± 3.9 | 3.6 ± 3.8 | 3.4 ± 3.6 | 2.0 ±3.1 |
| Interoceptive Awareness | 4.7 ± 5.0 | 4.5 ± 5.3 | 5.5 ± 5.4 | 3.0 ±3.9 |
| Maturity Fears | 5.0 ± 3.9 | 4.2 ± 3.6 | 3.8 ± 3.8 | 2.7 ±2.9 |
| Asceticism | 3.9 ± 3.1 | | | 3.4 ± 2.2 |
| Impulse Regulation | 4.7 ± 5.4 | | | 2.3 ± 3.6 |
| Social Insecurity | 5.0 ± 4.3 | | | 3.3 ± 3.3 |

Note. the values represent the mean score ± standard deviation.

The Christchurch populations EDI-2 scores are comparable to those reported by Rosen, Silberg & Gross (1988) and Shore & Porter (1990). The Rosen et al. (1988) group consists of 675 American girls aged 14 to 18 years, the Shore & Porter (1990) group consists of 231 Canadian girls also aged 14 to 18 years. The above studies

used the earlier version of the EDI (Garner, Olmstead & Polivy, 1984) which does not include the three provisional subscales. Garner (1991) provides means for the provisional subscales from a group of 205 female American college students aged from 18 to 25 years. The mean scores of the Christchurch sample are very similar to those reported by the college students, indicating that the EDI-2 scores for the Christchurch students are within the range for normal, healthy adolescents.

The EDI-2 subscale scores for the Christchurch sample were compared across ethnic groups. Maori and Samoan students scores were significantly higher than Pakeha students scores on the Bulimia ($F(5,166)=4.64$, $p=.0005$) and Interoceptive Awareness ($F(5,166)=3.49$, $p=.005$) subscales. Maori students scored significantly higher than both Pakeha and Samoan students on the Impulse Regulation subscale ($F(5,166)=3.35$, $p=.007$).

**1.6. Figure Rating Scale:** Table 5 presents the Christchurch sample's mean ratings and standard deviations for the Figure Rating Scale. Subjects tended to rate their current body as larger than their ideal body. The mean rating for current body was 39 and for ideal body was 31. Subjects' mean rating for the ideal body as perceived by the opposite sex was also 31. There were no significant differences in the Figure Ratings of subjects across ethnic groups.

Table 5: Figure Rating Scale scores for the Christchurch sample.

| | |
|---|---|
| Current | 39.2 ± 12.4 |
| Ideal | 31.1 ± 7.3 |
| Opposite sex | 31.1 ± 7.6 |

Note. the values represent the mean rating ± standard deviation.

The 69 male students rated the female figure they perceived as most attractive on the Figure Rating Scale. The male subjects were older than female subjects by two months (15.2±0.3 v 15.0±0.4 years; $t(429)= -4.45$, $p<.0001$), and were of slightly lower SES (48.4±16.4 v 44.3±14.7; $F(1,408)=4.03$, $p=.045$). The ethnic breakdown of male subjects was very similar to the females - 75% identified themselves as Pakeha or European, 14% Maori or part Maori, 5% Samoan, 2% Asian and 5% other.

The males mean rating on the Figure Rating Scale was 32.3±3.8, ratings ranged from 20 to 43. A t-test revealed no significant differences between female subjects perception of the female figure men find most attractive and the female figure male subjects reported they found most attractive ($t(405)=-1.26$, $p=.208$). The female figure males perceived as most attractive did differ significantly from the figure females chose as their current self ($t(416)=4.56$, $p=.0001$). There was no significant difference between the female figure males perceived as most attractive and the figure females chose as their ideal self ($t(415)=-1.33$, $p=.184$).

# 2. STUDY TWO

**2.1. Goal:** Study two examined differences in demographic parameters, eating parameters, and work orientation between single-sex and coed schools.

**2.2. Data Analysis:** Unpaired t-tests, multivariate analyses of variance (MANOVAs) and multivariate analyses of covariance (MANCOVAs) were used to compare the demographic, and psychometric scores of students attending single-sex and coed schools. All analyses were performed using either Statview (Abacus concepts, 1987) or JMP (SAS Institute Inc, 1989).

**2.3. Demographic Data:** Table 6 presents means and standard deviations of demographic variables for single-sex and coed schools.

Table 6: t-test comparing demographics for single-sex and coed school students.

| | single-sex | coed | t |
|---|---|---|---|
| Age (years) | 14.9 ± 0.4 | 15.0 ± 0.4 | 1.84 |
| SES | 40.4 ± 14.1 | 48.7 ± 14.2 | 5.47*** |
| BMI | 21.1 ± 3.0 | 22.0 ± 3.3 | 2.55** |
| Height (m) | 1.64 ± 0.1 | 1.64 ± 0.1 | -.60 |
| Weight (kg) | 56.9 ± 9.0 | 58.8 ± 9.4 | 2.00* |

Note. values represent means ± standard deviations.

*p<.05
**p<.01
***p<.0001

There was no significant difference in age between coed and single-sex students. Single-sex students scored significantly higher on the Hollingshead two factor index of social position, indicating higher socio-economic status among single-sex students. The coed students mean BMI was significantly greater than single-sex students. Coed students were heavier than single-sex students but there were no differences in the heights of the two groups. Seventy percent of coed students and 67% of single-sex students had a BMI within the desirable range for their age. Thirteen percent of coed students and 23% of single-sex students had a BMI below this range while 17% of coed students and 10% of single-sex students had a BMI above the desirable range.

**2.4. EDI-2 Symptom Checklist:** Table 7 presents comparisons of basic eating and weight control behaviours from single-sex and coed schools.

Table 7: t-test comparing EDI-2 symptom checklist for single-sex and coed school students

| | single-sex | coed | t |
|---|---|---|---|
| Dieting | 54% | 46% | 0.12 |
| Binging | 37% | 40% | -.66 |
| Vomiting | 10% | 13% | 1.06 |
| Laxatives | 3% | 2% | 0.05 |
| Diet pills | 2% | 3% | 0.76 |
| Diuretics | 0 | 1% | 1.01 |
| Menstruating | 93% | 98% | 1.63 |

There were no significant differences in numbers of students dieting, binging or purging at single-sex and coed schools. Slightly more single-sex than coed students had dieted (54% and 46% respectively). The average age of first dieting was slightly younger at single-sex schools (12.8 years) than coed schools (13.0 years). Thirty-seven percent of single-sex students had binged (average of 2.4 binges per week) compared with 40% of coed students (average of 2.2 binges per week). Ten percent of single-sex students and 13% of coed students had self-induced vomiting to lose weight. Few students had used laxatives, diet pills or diuretics to lose weight (under 4%). Ninety-three percent of single-sex students and 89% of coed students had begun menstruating.

**2.5. EDI-2 Subscales:** A MANOVA was conducted to compare the eight EDI-2 subscale scores and the three trial scale scores of students at single-sex and coed schools. This was not significant ($F(11,340)=0.78$, $p=0.66$). Table 8 presents univariate comparisons of the EDI-2 subscales for single-sex and coed schools. Non-adjusted means are presented. There were no significant differences on any of the EDI subscales between single-sex and coed students, all mean scores were very similar. In addition, all mean subscale scores were within the normal range for adolescent females (Garner, 1991).

Table 8: Mean EDI-2 subscale scores for single-sex and coed school students.

| | Single-sex | Coed | t |
|---|---|---|---|
| Drive for Thinness | 5.4 ± 5.5 | 5.3 ± 5.4 | -.18 |
| Bulimia | 2.3 ± 3.3 | 2.2 ± 2.8 | -.35 |
| Body Dissatisfaction | 13.4 ± 8.8 | 13.4 ± 8.1 | .06 |
| Ineffectiveness | 4.9 ± 5.6 | 5.7 ± 5.6 | 1.32 |
| Perfectionism | 4.0 ± 4.0 | 4.0 ± 4.0 | -.06 |
| Interpersonal Distrust | 4.2 ± 4.0 | 4.0 ± 3.8 | -.51 |
| Interoceptive Awareness | 4.4 ± 5.2 | 5.0 ± 4.8 | 1.13 |
| Maturity Fears | 5.1 ± 3.9 | 4.9 ± 3.9 | -.48 |
| Asceticism | 3.9 ± 3.0 | 3.0 ± 3.2 | .23 |
| Impulse Regulation | 4.6 ± 5.2 | 4.7 ± 5.2 | .23 |
| Social Insecurity | 4.8 ± 4.3 | 5.2 ± 4.4 | .74 |

Note. the values represent the mean score ± standard deviation.

As the BMI and SES of single sex and coed students were significantly different (see Table 6) a MANCOVA was conducted with coed as the main effect, BMI and SES as covariates, and the EDI-2 subscale scores as the dependent variables. The overall MANCOVA for the EDI-2 was significant (Wilks $\lambda$ = 0.68; $F(33,952)=4.00$, $p=.000$). The effect of coed was not significant ($F(11,323)=0.89$, $p=0.54$), but the effect of both BMI ($F(11,323)=8.58$, $p=.000$) and SES ($F(11,323)=2.93$, $p=.001$) were highly significant.

**2.6. Figure Rating Scale:** Table 9 presents the comparisons of the figure rating scale between single-sex and coed school students. There are no significant differences between the current, ideal and opposite sex body image ratings of single-sex and coed students.

Table 9: t-test comparing figure ratings for single-sex and coed school students.

| | single-sex | coed | t |
|---|---|---|---|
| Current | 38.4 ±12.9 | 40.0 ±11.8 | 1.21 |
| Ideal | 30.9 ±8.2 | 31.3 ±6.1 | 0.48 |
| Body dissatisfaction | 7.5 ±13.7 | 8.7 ±11.5 | 0.93 |
| Opposite sex | 31.3 ±8.0 | 30.9 ±7.2 | -.50 |

Note. the values represent the mean rating ± standard deviation.

**2.7. Work and Family Orientation Scale:** Table 10 presents the means and standard deviations for the WOFO subscale scores and a comparison of single-sex and coed school's scores. There were no significant differences between the WOFO subscale scores of single-sex and coed students. Subjects' mean scores are lower than those reported by Helmreich & Spence (1978) for American college students, on all four subscales, particularly the work subscale. There are no reported means for high school students.

Table 10: t-test comparing WOFO subscale scores for single-sex and coed school students.

| | single-sex | coed | t |
|---|---|---|---|
| Mastery | 15.7 ± 4.3 | 15.9 ± 4.7 | 0.41 |
| Competitiveness | 9.4 ± 3.7 | 9.7 ± 4.1 | 0.71 |
| Work | 7.1 ± 3.7 | 7.5 ± 3.9 | 1.10 |
| Personal Unconcern | 7.2 ± 2.8 | 7.4 ± 2.9 | 0.67 |

Note. the values represent the mean score ± standard deviation.

**2.8. Popularity Measure:** Table 11 presents the ratings and ranking of 14 items listed in the Popularity Measure by single-sex and coed students. The attributes most important in being popular were very similarly rated and ranked by single-sex students and coed students, both groups rated being funny, being a good listener, being confident and having a good social life as most important. Belonging to school clubs and activities was ranked significantly more importantly by single-sex students, while being good looking and having a slim figure were ranked significantly more importantly by coed students.

Table 11: Single-sex and coed students mean ratings and rankings on The Popularity Measure.

| | Ratings | | | Rankings | | |
|---|---|---|---|---|---|---|
| | Single | Coed | t | Single | Coed | t |
| Funny | 4.1 | 4.0 | .41 | 3.1 | 3.1 | -.25 |
| Good listener | 4.2 | 4.1 | .73 | 4.2 | 4.6 | 1.03 |
| Confident | 3.8 | 3.8 | .63 | 4.6 | 5.2 | 1.75 |
| Good social life | 3.9 | 3.8 | .28 | 5.3 | 5.1 | -.66 |
| Trendy clothes | 3.1 | 3.2 | .24 | 7.3 | 6.6 | -1.83 |
| Cool | 3.1 | 3.0 | .27 | 7.8 | 8.3 | 1.48 |
| Intelligent | 2.9 | 3.0 | .48 | 7.0 | 7.4 | .90 |
| Good looking | 2.8 | 3.0 | .21 | 8.5 | 7.3 | -3.10** |
| Boyfriends | 2.9 | 3.0 | .60 | 8.4 | 8.2 | -.43 |
| Slim figure | 2.6 | 2.8 | .24 | 9.1 | 8.0 | -3.02** |
| Good at sports | 2.7 | 2.7 | .92 | 9.1 | 9.4 | .29 |
| School clubs | 2.6 | 2.6 | .72 | 8.7 | 9.6 | 2.40* |
| Loud | 2.5 | 2.6 | .62 | 9.8 | 10.2 | .99 |
| Rich | 2.2 | 2.1 | .70 | 12.0 | 11.3 | -.71 |

Note. Ratings range from 1 (unimportant) to 5 (important).

Rankings range from 1 (important) to 14 (unimportant).

*$p<.05$
**$p<.005$

# CHAPTER FOUR

# DISCUSSION

## 1. STUDY ONE: EATING BEHAVIOURS AND ATTITUDES IN ADOLESCENT GIRLS

The findings of the first part of this study show that eating disordered behaviours are alarmingly common among adolescent girls in Christchurch. The high prevalence rates of dieting, binging, purging and body dissatisfaction found among this sample of adolescent girls are consistent with overseas findings.

Over half (54%) of Christchurch adolescent girls sampled had already attempted dieting to lose weight and most had begun dieting before the age of 13. The definition of dieting used in the current study was quite specific- 'have you ever restricted your food intake due to concerns about your body size or weight?'. Many students did not appear to associate this definition with general dieting, if they had been asked 'have you ever dieted?' the percentages may have been even higher in this study. The prevalence rates of dieting found in this study are comparable to the findings of other studies. Koff & Rierdan (1991) found that over half of the American adolescent girls they surveyed had dieted and 70% of these first dieted between that ages of 9-11 years. As dieting has been identified as one of the major risk factors in the development of eating disorders (Hsu, 1990), the high prevalence of dieting among young girls is very worrying.

Thirty-eight percent of the Christchurch girls sampled reported that they had binged at sometime and the average number of binges per week was 2.3. The

prevalence rates for weekly binging found in other studies range from 17% to 21%, which is considerably less than the rates reported in the current study (Abraham et al., 1983; Johnson et al., 1984; Moss et al., 1984). The excessively high rate of binging found in the current study is possibly a result of the definition of binging, 'have you ever had an episode of eating an amount of food that others would regard as unusually large?', binging was discussed with many individuals but some subjects may have reported subjective, rather than objective binges. Binge eating does not have a generally accepted specific meaning (Fairburn & Beglin, 1990), the criterion used to define binging in this study was less stringent than other recognised diagnostic criteria such as DSM-III-R. DSM-III-R refers to recurrent episodes of binge eating (rapid consumption of a large amount of food in a discrete period of time); a feeling of lack of control over eating behaviour during the eating binges; and on average, a minimum of two binge eating episodes a week for at least three months (American Psychiatric Association, 1987). The fact that nearly 40% of girls as young as 14 believe what they are eating is an abnormally large amount of food, when in actual fact what they are eating is quite normal, is alarming. These feelings can lead a young person to feel they need to diet or purge to get rid of the food eaten.

A high percentage of Christchurch girls sampled also reported purging by either self-inducing vomiting (12%), using laxatives (2.5%), using dietpills (2.2%) or using diuretics (0.3%). The prevalence rates of purging reported in other studies are again similar. The rate of self-induced vomiting (12%) is slightly higher in this study than in overseas studies (7% to 11%). The rates for the misuse of laxatives, diuretics and diet pills reported in others studies are slightly higher than those found in the current study (Abraham et al., 1983; Ben-Tovim et al., 1989; Johnson et al., 1984; Killen, 1986; Moss et al., 1984). The high rate of more drastic measures of weight control, such as self-induced vomiting, among such young women is

alarming. These behaviours can lead to serious physical and psychological complications (Moss et al., 1984), and can provoke and maintain the cycle of binge-eating and purging.

On the Figure Rating Scale 71% of the adolescent girls studied chose an ideal figure that was thinner than the current figure they chose, indicating that they feel dissatisfied with their body and want to lose weight. Only 13% of the subjects had a BMI that was above the healthy range for adolescents, this indicates how grossly out of proportion this body image dissatisfaction is. Only 16% were satisfied with their body and did not want to change their shape or size, while 13% wanted to be larger or heavier.

The ideal female figures chosen by boys and girls were not significantly different. The ideal female figures chosen by boys and girls did differ significantly from the current figure chosen by girls. This illustrates that most teenage girls want to be thinner and think males prefer females who are thinner than they perceive themselves to be. Their males peers prefer female figures that are thinner than the females perceive themselves to be.

Polynesian students were as likely as European students to restrict their food intake and to engage in binge eating. There was no significant difference in the prevalence of dieting and binging across ethnic groups. Samoan subjects were significantly more likely to purge by self-induced vomiting or using diuretics than Maori and Pakeha subjects. Maori subjects scored significantly higher on the EDI-2 bulimia, interoceptive awareness and impulse regulation subscales than Pakeha subjects. As the EDI-2 has not be tested on these populations there are no norms available for Maori people. This findings could indicate a higher tendency to binge and purge, increased confusion over emotions and greater impulsivity among Maori students,

but must be interpreted with caution until the EDI-2 has been further tested in these populations.

Maori and Samoan students also were as likely to be dissatisfied with their body shape and size as Pakeha or European students. There were no significant differences in the Figure Ratings of Maori, Samoan and Pakeha students. Maori women appear to be adopting the Western, Caucasian norm of thinness as their ideal. Murchie (1984) found that two-thirds of young Maori women aged under 30 years weighed less than 68kg but 55% of these women perceived themselves as overweight. Polynesian women are naturally heavier and have larger body frames than Caucasian women, the Hilary Commission report (1991) states the average BMI of Maori women as 27.3 while the average for non-Maori women is 24.5. Maori women appear to be adopting the thin ideal figure aspired to by the Western culture. As Maori women are naturally heavier than Caucasian women, the thin ideal is even more unrealistic and unattainable and could, therefore place them at increased risk for developing eating disorders. The more one has to lose weight and diet to attain the ideal figure, the greater the restriction and greater the risk of developing a serious eating disorder.

The high prevalence of dieting, binging and purging among young women in New Zealand and overseas is alarming. These behaviours illustrate the high degree of body dissatisfaction and the strong desire to change their appearance, body shape and size held by the majority of young women in our culture. As dieting has been found to be a risk factor for the development of eating disorders (Hsu, 1990), the high prevalence of weight reducing behaviours among young people should be a major concern to our society.

# 2. STUDY TWO: EATING BEHAVIOURS AND ATTITUDES AT SINGLE-SEX AND COED SCHOOLS

The comparisons between eating disordered behaviours and attitudes of students at single-sex and coed schools did not reveal any significant differences. Single-sex and coed students did not report significantly different eating and weight control behaviours on the EDI-2 symptom checklist, the percentage of students dieting, binging and purging at both types of school were very similar.

The EDI-2 subscale scores of single-sex and coed students were not significantly different. This indicates that the type of school attended (single-sex or coed) does not effect the eating disordered attitudes and behaviours of young people.

Both BMI and SES were significantly different at single-sex and coed schools - single-sex school students had a lower mean BMI and SES scores (indicating they are of lower weight for their height and higher socio-economic status). The EDI-2 subscale scores were entered into a MANCOVA with type of school (single-sex or coed) as the main effect and BMI and SES as covariates. The overall effect was significant, the effect of type of school was not significant but the effects of both BMI and SES were. Students who had a higher BMI and lower SES were more likely to score highly on the EDI-2 subscales. This indicates that the eating behaviours and attitudes measured by the EDI-2 are influenced not by the type of school, but by the different BMI's and SES of the students sampled.

The comparison of the body image dissatisfaction of single-sex and coed students, using the Figure Rating Scale, revealed no significant differences. Single-sex and coed students did not choose significantly different current or ideal figures and the figures they perceived as attractive to the opposite sex were also not significantly

different. Body image dissatisfaction (difference between the current and ideal figures chosen) were also not significantly different at single-sex and coed schools. Sixty-eight percent of single-sex students and 74% of coed students wanted to be thinner, while only 17% of the coed students and 10% of the single-sex students were above their healthy BMI range. Fifteen percent of single-sex students and 11% of coed students wanted to be larger, and 17% of single-sex students and 15% of coed students were satisfied with their current figure and did not want to change.

Single-sex and coed students did not score significantly differently on the WOFO subscales looking at achievement motivation. This opposes earlier research (Lee & Bryk, 1986) suggesting that students attending single-sex schools are more competitive than those at coed schools.

Single-sex and coed students ratings of the attributes listed in the Popularity Measure were not significantly different. Students at both types of schools listed being funny, being a good listener, and being confident as the most important personal characteristics. Single-sex students ranked belonging to school clubs as significantly more important than coed students (tenth as opposed to twelfth). Coed students ranked being good looking (sixth versus ninth) and having a slim figure (eighth versus eleventh) as more important than single-sex students. None of the variables that differed were ranked among the most important. This suggests that although single-sex and coed students agree on the most important attributes in being popular, they disagree on the secondary attributes. Single-sex students tend to value intelligence, trendy clothes, being cool and having boyfriends while coed students value trendy clothes, being good looking, intelligence and having a slim figure. Coed students appear to place more emphasis on physical appearance than single-sex students. These results are similar to those found by Schneider & Coutts (1982) who examined the value climate of single-sex and coed high schools

in Canada. The coed students ranked 'being good looking' and 'having money' as contributing more to the attainment of status among their peers than single-sex students. On the other hand, single-sex students ranked 'being a leader in activities' and 'getting high grades' higher than coed students. These findings suggest that single-sex students perceive their environment as placing greater emphasis on academic achievement whereas coed students rank nonacademic factors as more important.

This suggests that the type of school (single-sex or coeducational) an adolescent attends does not affect the development of eating disordered behaviours or body image disturbances. Many articles (Jones et al., 1987; Lee & Bryk, 1986, 1989; Lee & Marks, 1990; Marsh, 1989a, 1989b; Schneider & Coutts, 1982) do suggest a difference in the social environment of single-sex and coed schools but no other research has directly compared the eating behaviours and attitudes of students at the two types of schools. This study found no significant differences in the achievement orientation, competitiveness or perception of the attributes that make a person popular of students at single-sex and coed schools. This contrasts prior research and prejudice surrounding single-sex and coed schools.

## 3. LIMITATIONS

Only students attending public secondary schools were included in this study. To make this study more representative of Christchurch fourth form students, students at both private and public schools would need to be included. Past research found eating disordered behaviours to be more prevalent among students at private schools (Lawrence, 1984; cited in Cole & Edelmann, 1987), the sample of students

included in the current study may not be a true reflection of the eating problems of young adolescent girls in Christchurch.

The data were collected from subjects while they were in class groups (usually 20 to 30 people). Subjects were told not to discuss their answers with their peers and were encouraged to ask questions. It was not always possible to prevent students from discussing their answers, especially as they were being weighed and measured in the same room which caused some disruption. Consequently, students may not have been entirely honest in their answers and may have been influenced by their peers responses, making the results less accurate.

No information was collected on students who chose not to or were unable to participate. The actual refusal rate is unknown as students who did not participate were often in class elsewhere. From discussions with class teachers, the number of students chose not to participate was very low (approximately 2-3%), two students did not want to be weighed and several chose to concentrate on their school work. A slightly larger number of students were unable to participate due to absence from class (approximately 5%). No parents refused to allow their child to participate. As no information was collected on those who did not participate it was not possible to determine if the sample included accurately represented the fourth form girls at each school.

The sample studied only included females, no data were collected on adolescent males. Although eating disordered behaviours, and body image preoccupation and dissatisfaction are relatively rare among males, research shows that these difficulties do occur in a small percent of men (Hsu, 1990; Rozin & Fallon, 1988). Research needs to investigate the prevalence of eating disordered behaviours and

body image dissatisfaction among adolescent males and its relation to the school environment and characteristics.

A final limitation of this study was that the ethnic group of all subjects was not recorded. As eating disordered behaviours and attitudes appear to differ across ethnic groups, the small number of non-Caucasian subjects included in this study limited its ability to investigate the nature and extent of these differences.

## 4. FUTURE RESEARCH

The increasingly high prevalence of dieting, binging and purging in young girls is very concerning and needs to be investigated further. Research needs to examine why young women feel this pressure to be thin and change the way they look. The nature of dieting and other methods of weight control among young adolescent girls and how they learn about these behaviours needs to be fully understood. Women's magazines, popular television programmes and movies all portray the Western ideal that women need to be young, thin and beautiful to succeed in all areas of life. Young girls may also receive this message from their family and friends.

Education programmes aimed at intervention and prevention need to be investigated further. Killen et al. (1993) and Paxton (1993) have both designed intervention and prevention programmes but these failed to change the eating habits, weight loss behaviours or body dissatisfaction of the students included. Killen et al. randomised 967 6th and 7th grade (aged 12-14 years) American girls to either healthy weight regulations classes or a control group. The intervention had a small, but statistically significant effect on BMI of high-risk students. Paxton

conducted body image and eating behaviour intervention programmes in two Australian schools with girls (mean age 14.1 years) and also had a small sample of controls. This suggests that education programmes focusing on changing adolescent ideas about weight and shape may be better aimed at high risk students. Students may learn more if they are taught at a younger age, as children, to accept their own body shape and size.

The relation between culture, social class and eating disordered behaviours and attitudes warrants further investigation. Historically, eating disorders were believed to be a culture bound syndrome, found primarily among upper class, wealthy Caucasian women (Pate, Pumariega, Hester & Garner, 1992). The results of many studies investigating the relation between culture and eating disorders indicate that these trends are now changing. Eating disorders do exist in non-Caucasian individuals and culturally diverse ethnic groups (Davis & Yager, 1992; Pate et al., 1992). Immigrants from other cultures tend to adopt different eating behaviours and attitudes as they become acculturated into a developed Westernized society (Bulik, 1987; Hsu, 1990). The ideal that thinness has come to symbolise in Western cultures is becoming widely adopted among other ethnic groups as their cultural values and attitudes change to meet Western ideals (Pate et al., 1992). The findings of the present study confirm these trends, Maori and Samoan students were as dissatisfied with their body shape and size as Pakeha students. Dieting and binging were equally common among all ethnic groups. Interestingly Maori and Samoan students reported bulimic tendencies, emotional confusion and greater impulsivity. Further research needs to examine the relation between culture and eating disorders. Maybe as more Polynesian women are aspiring to the Western ideal of thinness, which contrasts their natural body weight and size, they are turning to bulimic tendencies in a chaotic attempt to control their eating behaviour and body shape and size. The nature of eating disordered behaviours and attitudes

among non-Western populations needs to be more fully investigated and understood.

Eating behaviours in single-sex and coed schools may also warrant more research, as this study did not include private schools. Past research has traditionally found eating disordered behaviours to be more prevalent among students attending private schools than public schools. Research needs to investigate whether these differences apply to both single-sex and coed private schools. The public/private school differences may also be disappearing, like the social class and cultural differences in eating disordered behaviours appear to be.

## 5. CONCLUSIONS

The first part of this study investigated the eating behaviours and attitudes of a large sample of adolescent girls in Christchurch. The results show that a distressingly high proportion of young women have attempted dieting, binging and purging, and that the vast majority of teenage girls are dissatisfied with their body shape and size and want to change the way they look. The male students surveyed also reported that they found thin female figures most attractive. Both female and male adolescents need to learn to accept a wide range of body shape and sizes as normal and attractive. Eating disordered behaviours and attitudes will continue to increase among adolescent females if they constantly feel they have to be thin to be successful, beautiful and popular in our society.

Part two of this study compared the eating behaviours and attitudes of single-sex and coed students. Two factors were identified that could influence the eating patterns of the two groups of students. Firstly that single-sex schools are more

competitive and students may compete to be thin, attractive and popular amongst their peers. Secondly that coed schools provide a more natural social environment that may be more or less conducive to the development of eating disordered behaviours. The findings of Part Two of this study failed to confirm either of the hypotheses presented in the introduction.

From these findings we can conclude that the eating behaviours of single-sex and coed students do not differ. Differences in their eating habits are more likely to be a result of differences in the characteristics of the students that attend single-sex and coed schools. Disordered eating behaviours appear to be very common among all teenage girls, these behaviours are becoming considered normal by this age group.

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# APPENDIX A

## RESEARCH PROPOSAL: COMPARING EATING BEHAVIOURS AND ATTITUDES IN SINGLE-SEX AND COED SCHOOLS.

Dieting and weight concerns are becoming increasingly common among young adolescent girls. Dieting during adolescence is often a peer-driven activity. Research shows that the majority of adolescent girls have unrealistic body image concerns and think they are overweight. These behaviours can lead to more serious problems such as body image distortions and eating disorders such as anorexia nervosa and bulimia nervosa.

Very little research has been done comparing dieting and body image in single-sex vs coed schools. While there may be no difference in the nature of attitudes, different climates and peer-pressures may exist that influence the nature of these concerns in young women.

This study is designed to examine eating behaviours and attitudes in young women and how they relate to the personality characters of competitiveness and perfectionism and the social variable of popularity in single-sex and coed schools.

**PROCEDURE**

Consent -

Informed consent will be obtained from students and their parents before any data are collected. Results will be completely confidential and subjects can withdraw from the study at any time.

Subjects -

Approximately 100 female students from each school and 50 male students from a coed school will be involved in this study. Subjects will be students in fourth form classes. This procedure should take approximately one hour.

Measurements -

1. All female subjects will be weighed and have their height measured by the researcher.

2. Female subjects will be required to fill out 4 questionnaires:-
   - The Eating Disorder Inventory - this measures eating behaviours and attitudes.
   - The Work and Family Questionnaire - this measures mastery, work, competitiveness and personal unconcern.
   - The Popularity Measure - This measure evaluates which personal attributes are most important in being popular.
   - The Body Image Perception Measure - this measures perception of body image.

3. Male subjects will be required to fill out the Body Image

Identifying clinical cases -

As this study is both confidential and anonymous I will be unable to identify students whose results may reveal eating problems. To help any students who have any questions or problems arising from their participation in this study I will give all subjects a printed handout on the Women With Eating Disorders Resource Centre here in Christchurch. This handout will describe the work of the centre and let students know how they can contact the centre if they have any concerns.

## IMPLICATIONS

Eating behaviours and attitudes are very important during adolescence when young people are still growing and developing their own personalities. Young girls tend to be very impressionable at this age and are generally very concerned about their appearance. Weight control through dieting or any other means can lead to more serious problems such as body image distortions and eating disorders.

If differences arise in the nature of eating and weight concerns in single sex and coed schools, our results could aid health educators in tailoring education programs to the specific needs of these institutions.

**FEEDBACK -**

Written feedback describing the results found and conclusions that can be drawn will be sent to all schools as soon as the data are collated and analysed. I will be more than happy to come and discuss the results of this study with the staff and students of each school.

# APPENDIX B

**University of Canterbury** **Department of Psychology**

## CONSENT FORM - GIRLS

REASON FOR THE PROJECT: This project compares eating behaviours and attitudes of girls at single-sex and coed schools.

YOUR TASKS IN THIS PROJECT: You will be invited to complete 4 questionnaires. These ask questions about eating behaviours, competitiveness, popularity, and body image perception. You will also be weighed and have your height measured.

RISKS ASSOCIATED WITH PARTICIPATION: There are no risks associated with participation in this study. The reseacher will be happy to discuss any questions or problems you have arising from your participation in this study.

CONFIDENTIALITY: The information gained through this study will be entirely confidential. Your name will not be asked or used in any way.

VOLUNTARY PARTICIPATION: Participation in this study is entirely voluntary and you can withdraw from the study at any time.

TIME REQUIRED: Time required for participation in this study is approximately 1 hour.

NAME OF RESEARCHER: Jennifer Fear.

NAMES OF SUPERVISORS: Cynthia Bulik Ph.D. and Mark Byrd Ph.D.

I agree to participate in the project described above, on the understanding that if at any time I wish to withdraw from the experiment I may, without prejudice, do so. All information collected will be confidential as will the identity of participants.

NAME:_____

SIGNATURE:_____ DATE:_____

**Unversity of Canterbury** **Department of Psychology**

## CONSENT FORM - GIRL'S PARENTS

REASON FOR THE PROJECT: This project compares eating behaviours and attitudes of girls at single-sex and coed schools.

YOUR DAUGHTER'S TASKS IN THIS PROJECT: Your daughter will be invited to complete 4 questionnaires. These ask questions about eating behaviours, competitiveness, popularity, and body image perception. She will also be weighed and have her height measured.

RISKS ASSOCIATED WITH PARTICIPATION: There are no risks associated with participation in this study. The reseacher will be happy to discuss any questions or problems your daughter may have arising from her participation in this study.

CONFIDENTIALITY: The information gained through this study will be entirely confidential. Your daughter's name will not be asked or used in any way.

VOLUNTARY PARTICIPATION: Participation in this study is entirely voluntary and your daughter can withdraw from the study at any time.

TIME REQUIRED: Time required for participation in this study is approximately 1 hour.

NAME OF RESEARCHER: Jennifer Fear.

NAMES OF SUPERVISORS: Cynthia Bulik Ph.D. and Mark Byrd Ph.D.

I agree to allow my daughter to participate in the project described above, on the understanding that if at any time she wishes to withdraw from the experiment she may, without prejudice, do so. All information collected will be confidential as will the identity of participants.

DAUGHTERS NAME:_____

SIGNATURE:_____ DATE:_____

**University of Canterbury** **Department of Psychology**

## CONSENT FORM - BOYS

REASON FOR THE PROJECT: This project compares eating behaviours and attitudes of girls at single-sex and coed schools.

YOUR TASKS IN THIS PROJECT: You will be invited to complete a questionnaire measuring body image perception. Your answers will be compared with the answers given by girls on the same questionnaire.

RISKS ASSOCIATED WITH PARTICIPATION: There are no risks associated with participation in this study. The reseacher will be happy to discuss any questions or problems you may have arising from your participation in this study.

CONFIDENTIALITY: The information gained through this study will be entirely confidential. Your name will not be asked or used in any way.

VOLUNTARY PARTICIPATION: Participation in this study is entirely voluntary and you can withdraw from the study at any time.

TIME REQUIRED: Time required for participation in this study is approximately 5 minutes.

NAME OF RESEARCHER: Jennifer Fear.

NAMES OF SUPERVISORS: Cynthia Bulik Ph.D. and Mark Byrd Ph.D.

I agree to participate in the project described above, on the understanding that if at any time I wishes to withdraw from the experiment I may, without prejudice, do so. All information collected will be confidential as will the identity of participants.

NAME:_____

SIGNATURE:_____ DATE:_____

**University of Canterbury** **Department of Psychology**

## CONSENT FORM - BOY'S PARENTS

REASON FOR THE PROJECT: This project compares eating behaviours and attitudes of girls at single-sex and coed schools.

YOUR SON'S TASKS IN THIS PROJECT: Your son will be invited to complete a questionnaire measuring body image perception. His answers will be compared with the answers given by girls on the same questionnaire.

RISKS ASSOCIATED WITH PARTICIPATION: There are no risks associated with participation in this study. The reseacher will be happy to discuss any questions or problems your son may have arising from his participation in this study.

CONFIDENTIALITY: The information gained through this study will be entirely confidential. Your son's name will not be asked or used in any way.

VOLUNTARY PARTICIPATION: Participation in this study is entirely voluntary and your son can withdraw from the study at any time.

TIME REQUIRED: Time required for participation in this study is approximately 5 minutes.

NAME OF RESEARCHER: Jennifer Fear.

NAMES OF SUPERVISORS: Cynthia Bulik Ph.D. and Mark Byrd Ph.D.

I agree to allow my son to participate in the project described above, on the understanding that if at any time he wishes to withdraw from the experiment he may, without prejudice, do so. All information collected will be confidential as will the identity of participants.

SON'S NAME:_____

SIGNATURE:_____ DATE:_____

# APPENDIX C

## QUESTIONNAIRE BOOKLET

Subject Code:_____

Age:_____years _____months sex:_____

Ethnic group (e.g European, Pakeha, Maori etc):_____

School:_____

Father's occupation:_____

Father's education (eg. years at high school, university degree etc)

:_____

Mother's occupation:_____

Mother's education (eg years at high school, university degree etc)

:_____

Please answer the questions on this page and then open the questionnaire booklet. This booklet contains 4 questionnaires, each has its own specific instructions so please read these carefully. It is important to remember that there are no right or wrong answers, just answer each question as honestly as possible. If you have any questions raise your hand and I will come and help you.

Thank you for participating in this study, your cooperation is very much appreciated.

## EDI

Complete the questions for PART ONE of this questionnaire by either circling the correct answer or writing your answer in the space provided. Then carefully follow the instructions for PART TWO of this questionnaire.

**PART ONE.**

1. Have you ever restricted your food intake due to concerns about your body size or weight? Yes / No

2. How old were you the very first time that you began to seriously restrict your food intake due to concern about your body size or weight _____ years old

Please remember in answering the following questions that an eating binge only refers to eating an amount of food that others of your age and sex regard as unusually large. It does not include times when you may have eaten a normal quantity of food which you would have preferred not to have eaten.

3. Have you ever had an episode of eating an amount of food that others would regard as unusually large. Yes / No

4. If yes, at the worst of times what was your average number of binges per week? _____binges per week

5. Have you ever tried to vomit after eating in order to get rid of the food eaten? Yes / No

6. Have you ever used laxatives to control your weight or "get rid of food?" Yes / No

7. Have you ever taken diet pills? Yes / No

8. Have you ever taken diuretics (water pills) to control your weight? Yes / No

9. Have you ever had a menstrual period? Yes / No

## EDI-2 ANSWER SHEET

This is your answer sheet for part two of this questionnaire. Please pull it out now and then carefully read the instructions on the next page. Enter your ratings on this sheet.

A = ALWAYS U = USUALLY O = OFTEN S = SOMETIMES R = RARELY N = NEVER

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A U O S R N | 20 | A U O S R N | 39 | A U O S R N | 58 | A U O S R N | 76 | A U O S R N |
| 2 | A U O S R N | 21 | A U O S R N | 40 | A U O S R N | 59 | A U O S R N | 77 | A U O S R N |
| 3 | A U O S R N | 22 | A U O S R N | 41 | A U O S R N | 60 | A U O S R N | 78 | A U O S R N |
| 4 | A U O S R N | 23 | A U O S R N | 42 | A U O S R N | 61 | A U O S R N | 79 | A U O S R N |
| 5 | A U O S R N | 24 | A U O S R N | 43 | A U O S R N | 62 | A U O S R N | 80 | A U O S R N |
| 6 | A U O S R N | 25 | A U O S R N | 44 | A U O S R N | 63 | A U O S R N | 81 | A U O S R N |
| 7 | A U O S R N | 26 | A U O S R N | 45 | A U O S R N | 64 | A U O S R N | 82 | A U O S R N |
| 8 | A U O S R N | 27 | A U O S R N | 46 | A U O S R N | | | 83 | A U O S R N |
| 9 | A U O S R N | 28 | A U O S R N | 47 | A U O S R N | 65 | A U O S R N | 84 | A U O S R N |
| 10 | A U O S R N | 29 | A U O S R N | 48 | A U O S R N | 66 | A U O S R N | 85 | A U O S R N |
| 11 | A U O S R N | 30 | A U O S R N | 49 | A U O S R N | 67 | A U O S R N | 86 | A U O S R N |
| 12 | A U O S R N | 31 | A U O S R N | 50 | A U O S R N | 68 | A U O S R N | 87 | A U O S R N |
| 13 | A U O S R N | 32 | A U O S R N | 51 | A U O S R N | 69 | A U O S R N | 88 | A U O S R N |
| 14 | A U O S R N | 33 | A U O S R N | 52 | A U O S R N | 70 | A U O S R N | 89 | A U O S R N |
| 15 | A U O S R N | 34 | A U O S R N | 53 | A U O S R N | 71 | A U O S R N | 90 | A U O S R N |
| 16 | A U O S R N | 35 | A U O S R N | 54 | A U O S R N | 72 | A U O S R N | 91 | A U O S R N |
| 17 | A U O S R N | 36 | A U O S R N | 55 | A U O S R N | 73 | A U O S R N | | |
| 18 | A U O S R N | 37 | A U O S R N | 56 | A U O S R N | 74 | A U O S R N | | |
| 19 | A U O S R N | 38 | A U O S R N | 57 | A U O S R N | 75 | A U O S R N | | |

**PART TWO**

INSTRUCTIONS

Your ratings on the items below will be made on the EDI-2 Answer sheet. The items ask about your attitudes, feelings, and behaviour. Some of the items relate to food or eating. Other items ask about your feelings about yourself.

For each item, decide if the item is true about you ALWAYS (A), USUALLY (U), OFTEN (O), SOMETIMES (S), RARELY (R) OR NEVER (N). Circle the letter that corresponds to your rating on the EDI-2 Answer Sheet. For example, if your rating for an item is OFTEN, you would circle the O for that item in the Answer Sheet.

Respond to all of the items, making sure that you circle the letter for the rating that is true about you. DO NOT ERASE! If you need to change an answer, make an "X" through the incorrect letter and then circle the correct one.

1. I eat sweets and carbohydrates without feeling nervous.
2. I think that my stomach is too big.
3. I wish that I could return to the security of childhood.
4. I eat when I am upset.
5. I stuff myself with food.
6. I wish that I could be younger.
7. I think about dieting.
8. I get frightened when my feelings are too strong.
9. I think that my thighs are too large.
10. I feel ineffective as a person.
11. I feel extremely guilty after overeating.
12. I think that my stomach is just the right size.
13. Only outstanding performance is good enough in my family.
14. The happiest time in life is when you are a child.
15. I am open about my feelings.
16. I am terrified of gaining weight.
17. I trust others.
18. I feel alone in the world.
19. I feel satisfied with the shape of my body.
20. I feel generally in control of things in my life.
21. I get confused about what emotion I am feeling.
22. I would rather be an adult than a child.
23. I can communicate with others easily.
24. I wish I were someone else.
25. I exaggerate or magnify the importance of weight.
26. I can clearly identify what emotion I am feeling.
27. I feel inadequate.
28. I have gone on eating binges where I felt I could not stop.
29. As a child, I tried very hard to avoid disappointing my parents and teachers.
30. I have close relationships.
31. I like the shape of my buttocks.
32. I am preoccupied with the desire to be thinner.
33. I don't know what's going on inside of me.
34. I have trouble expressing my emotions to others.
35. The demands of adulthood are too great.
36. I hate being less than best at things.
37. I feel secure about myself.
38. I think about bingeing (overeating).
39. I feel happy that I am not a child anymore.
40. I get confused as to whether or not I am hungry.
41. I have a low opinion of myself.
42. I feel that I can achieve my standards.

43. My parents have expected excellence of me.
44. I worry that my feelings will get out of control.
45. I think my hips are to big.
46. I eat moderately in front of others and stuff myself when they are gone.
47. I feel bloated after eating a normal meal.
48. I feel that people are happiest when they are children.
49. If I gain a pound, I worry that I will keep gaining.
50. I feel that I am a worthwhile person.
51. When I am upset, I don't know if I am sad, frightened, or angry.
52. I feel that I must do things perfectly or not do them at all.
53. I have the thought of trying to vomit in order to lose weight.
54. I need to keep people at a certain distance (feel uncomfortable if someone tries to get too close).
55. I think that my thighs are just the right size.
56. I feel empty inside (emotionally).
57. I can talk about personal thoughts or feelings.
58. The best years of your life are when you become an adult.
59. I think my buttocks are too large.
60. I have feelings I can't quite identify.
61. I eat or drink in secrecy.
62. I think my hips are just the right size.
63. I have extremely high goals.
64. When I am upset, I worry that I will start eating.
65. People I really like end up disappointing me.
66. I am ashamed of my human weaknesses.
67. Other people would say that I am emotionally unstable.
68. I would like to be in total control of my bodily urges.
69. I feel relaxed in most group situations.
70. I say things impulsively that I regret having said.
71. I go out of my way to experience pleasure.
72. I have to be careful of my tendency to abuse drugs.
73. I am outgoing with most people.
74. I feel trapped in relationships.
75. Self-denial makes me stronger spiritually.
76. People understand my real problems.
77. I can't get strange thoughts out of my head.
78. Eating for pleasure is a sign of moral weakness.
79. I am prone to outbursts of anger or rage.
80. I feel that people give me the credit I deserve.
81. I have to be careful of my tendency to abuse alcohol.
82. I believe that relaxing is simply a waste of time.
83. Others would say that I get irritated easily.
84. I feel like I am losing out everywhere.
85. I experience marked mood shifts.
86. I am embarrassed about my bodily urges.
87. I would rather spend time by myself than with others.
88. Suffering makes you a better person.
89. I know that people love me.
90. I feel like I must hurt myself or others.
91. I feel that I really know who I am.

# WOFO

Please indicate how well each of the following statements describes yourself by circling the most appropriate number. (1 = very unlike me, 2 = unlike me, 3 = neither like or unlike me, 4 = like me, 5 = very like me).

| | very unlike me | | | | very like me |
|---|---|---|---|---|---|
| 1. I would rather do something at which I feel confident and relaxed than something which is challenging and difficult. | 1 | 2 | 3 | 4 | 5 |
| 2. It is important for me to do my work as well as I can even if it isn't popular with my classmates. | 1 | 2 | 3 | 4 | 5 |
| 3. I enjoy working in situations involving competition with others. | 1 | 2 | 3 | 4 | 5 |
| 4. When a group I belong to plans an activity, I would rather direct it myself than just help out and have someone else organise it. | 1 | 2 | 3 | 4 | 5 |
| 5. I feel that good relations with my fellow classmates are more important than performance on a task. | 1 | 2 | 3 | 4 | 5 |
| 6. I would rather learn easy fun games than difficult thought games. | 1 | 2 | 3 | 4 | 5 |
| 7. It is important to me to perform better than others on a task. | 1 | 2 | 3 | 4 | 5 |
| 8. I worry because my success may cause others to dislike me. | 1 | 2 | 3 | 4 | 5 |
| 9. I find satisfaction in working as well as I can. | 1 | 2 | 3 | 4 | 5 |
| 10. If I am not good at something I would rather keep struggling to master it than to move on to something I may be good at. | 1 | 2 | 3 | 4 | 5 |
| 11. I avoid discussing my accomplishments because other people might be jealous. | 1 | 2 | 3 | 4 | 5 |
| 12. Once I undertake a task, I persist. | 1 | 2 | 3 | 4 | 5 |
| 13. I prefer to work in situations that require a high level of skill. | 1 | 2 | 3 | 4 | 5 |
| 14. There is satisfaction in a job well done. | 1 | 2 | 3 | 4 | 5 |
| 15. I feel that winning is important in both work and games. | 1 | 2 | 3 | 4 | 5 |

| | very unlike me | | | | very like me |
|---|---|---|---|---|---|
| 16. I more often attempt tasks that I am not sure I can do than tasks I believe I can do. | 1 | 2 | 3 | 4 | 5 |
| 17. I sometimes work at less than my best because I feel that others may resent me for performing well. | 1 | 2 | 3 | 4 | 5 |
| 18. I find satisfaction in exceeding my previous performance even if I don't out perform others. | 1 | 2 | 3 | 4 | 5 |
| 19. I like to work hard. | 1 | 2 | 3 | 4 | 5 |
| 20. Part of my enjoyment in doing things is improving my past performance. | 1 | 2 | 3 | 4 | 5 |
| 21. It annoys me when other people perform better than I do. | 1 | 2 | 3 | 4 | 5 |
| 22. I like to be busy all the time. | 1 | 2 | 3 | 4 | 5 |
| 23. I try harder when I'm in competition with other people. | 1 | 2 | 3 | 4 | 5 |

# POPULARITY MEASURE

1. How important are each of the characteristics listed below in being popular amongst your friends and classmates at school? Please circle the number that best describes how important each characteristic is to you in being popular. (1 = very unimportant, 2 = unimportant, 3 = neutral, 4 = important, 5 = very important).

| | very unimportant | | | | very important |
|---|---|---|---|---|---|
| Funny, sense of humour | 1 | 2 | 3 | 4 | 5 |
| Trendy clothes | 1 | 2 | 3 | 4 | 5 |
| Belong to school clubs and activities (not including sports) | 1 | 2 | 3 | 4 | 5 |
| Go out a lot, good social life | 1 | 2 | 3 | 4 | 5 |
| A good listener | 1 | 2 | 3 | 4 | 5 |
| Good figure, slim | 1 | 2 | 3 | 4 | 5 |
| Loud | 1 | 2 | 3 | 4 | 5 |
| Go out with boys, have boyfriend | 1 | 2 | 3 | 4 | 5 |
| Intelligent, academic | 1 | 2 | 3 | 4 | 5 |
| Good looking, pretty | 1 | 2 | 3 | 4 | 5 |
| Cool | 1 | 2 | 3 | 4 | 5 |
| Self confident | 1 | 2 | 3 | 4 | 5 |
| Rich Parents | 1 | 2 | 3 | 4 | 5 |
| Good at sports | 1 | 2 | 3 | 4 | 5 |

2. The same characteristics are now listed below again. Please find the most important characteristic in being popular and put the number 1 beside it. Then find the second most important characteristic and put the number 2 beside it. Continue doing this until you have put a number beside each characteristic and reached number 14.

Funny, sense of humour _____

Trendy clothes _____

Belong to school clubs and actitivies (not including sports) _____

Go out a lot, good social life _____

A good listener _____

Good figure, slim _____

Loud _____

Go out with boys, have boyfriend _____

Intelligent, academic _____

Good looking, pretty _____

Cool _____

Self confident _____

Rich Parents _____

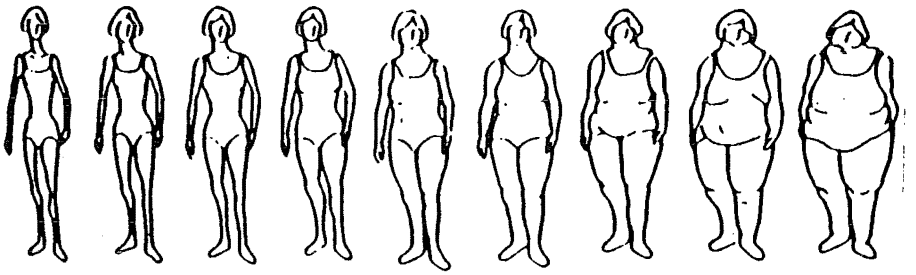
Good at sports _____

3. How important is being popular to you? Circle the number below that best describes how you feel.

| not important | | fairly important | | very important | | extremely important |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

# BODY IMAGE PERCEPTION

Drawn below are nine figure drawings of females, each is accompanied with a numerical value ( 10 very thin -> 90 very heavy). Please answer the following questions by selecting the value of the figure that best illustrates your opinion, you may use intermediate numbers such as 23 or 49.



10 20 30 40 50 60 70 80 90

1. What is the value that best describes your current appearance? _____
2. What is the value that best describes what you would most like to look like? _____
3. What is the value that best describes what you think is most attractive to the opposite sex? _____

# APPENDIX D

## QUESTIONNAIRE SHEET

Please answer the following questions as honestly as possible. It is important to remember that there are no right or wrong answers.

Subject Code:_____ Gender:_____

Age:_____years _____months School :_____

Ethnic Group(eg European, Pakeha, Maori etc):_____

Father's occupation:_____

Father's education (eg. years at high school, university degree etc)

:_____

Mother's occupation:_____

Mother's education (eg. years at high school, university degree etc)

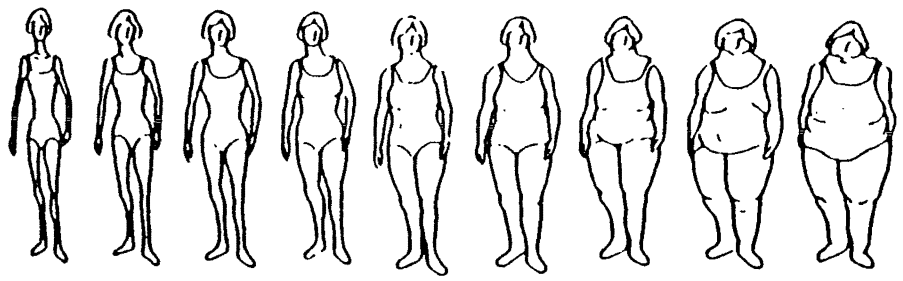
:_____

**BODY IMAGE PERCEPTION MEASURE**

Drawn below are nine figure drawings of females, each is accompanied with a numerical value (10 very thin -> 90 very heavy).

Please indicate the figure of the opposite sex that you find most attractive by selecting the value under the figure that best illustrates your opinion, you may use intermediate numbers such as 23 or 49.

What is the value of the figure that you find most attractive?_____



10 20 30 40 50 60 70 80 90

**Thank you for participating in this study, your cooperation is very much appreciated.**